

**FOSS**



**Dairy Powder Process Analysis**  
Get more out of your production with  
High Resolution in-line analysis

**ProFoss™**

Dedicated Analytical Solutions



*Get a clearer picture of your dairy powder production with High Resolution process analysis.*

## Let your production staff improve your business

Profit opportunities are waiting to be found in your dairy powder process, regardless of whether you are producing Skim Milk Powder, Whole Milk Powder, Whey Powder, WPC or Caseinate Powder.

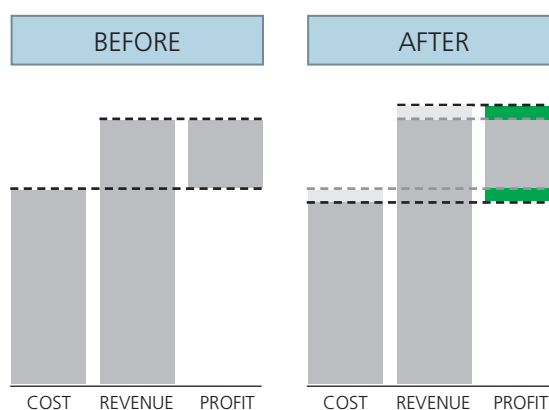
For instance, more accurate control of moisture in the final dairy powder provides increased yield. At the same time, improved product consistency can provide new pricing options.

Give your production staff the right tool in the form of a ProFoss™ integrated High Resolution process analysis solution and they can achieve increased yield and improved consistency.

Users of such solutions report a rapid return on investment with a typical payback time of less than twelve months.

Advantages of dairy powder process control include improved yield and profit based on:

- Optimised moisture content
- Consistent product quality
- Higher value products for your customers
- Increased energy efficiency
- Reduced rework



*Stretch your profit zone: Production costs can be decreased and the higher product consistency will increase your competitiveness.*

*"FOSS is committed to process analysis because, quite simply, it is the future of food production. Tighter control of production is a sure way for you to improve both profit and customer satisfaction while minimising energy usage."*

*Peter Foss, President*

## The FOSS difference – dairy powder application knowledge and experience

At the heart of any FOSS analytical solution is a simple and enduring concept: To give you just what you need to obtain accurate, timely information according to the demands of your production environment.

This is a principle that FOSS has followed for over 50 years. And that's why today, FOSS is unique in offering dedicated solutions for dairy powder process analysis and control. Our knowledge and experience ensures that your process analysis solution is right for your demands and can be applied quickly and easily to your production.

### Investing in a process analysis solution

With any process analysis solution you are effectively putting your production in the hands of technology. FOSS is the right partner to provide a reliable solution that will run day in, day out and year after year.

FOSS dairy powder solutions offer:

- ☑ Proven technology for accurate and trouble-free operations
- ☑ User-friendly interfaces allowing anyone in the plant to contribute to process control
- ☑ Service programs offering a range of options to suit your business. Get your service in a timely manner by fully trained local staff onsite and/or remotely through internet

### FOSS Total Service Solutions

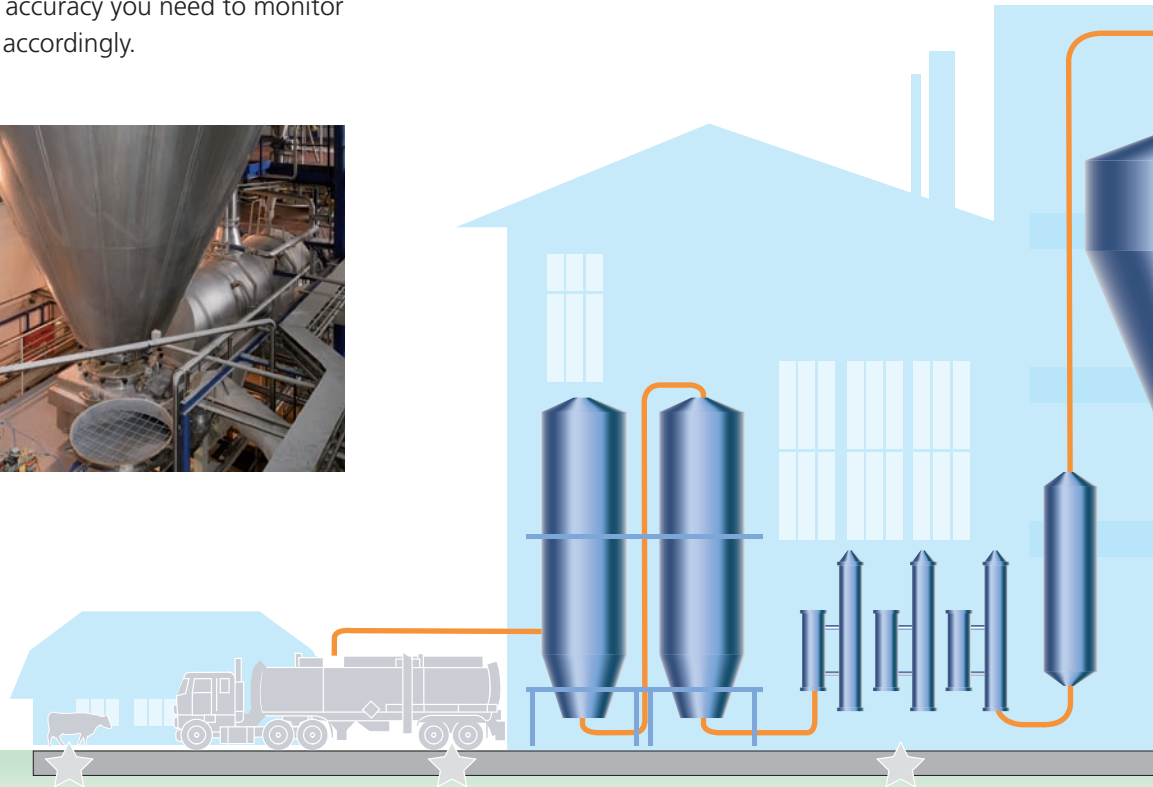
- FOSS is committed to providing complete and fully integrated solutions
- Our relationship with you is a continuous partnership
- FossCare™ Total Service Solutions are available at multiple levels according to your needs

### FOSS

- World's leading provider of analytical solutions for the food, agricultural, chemical and pharmaceutical industries
- Helps customers improve profit, product quality and food safety
- FOSS solutions are used for routine laboratory analysis as well as at-line and in-line process control
- Over 90 of the world's top 100 food and agricultural companies use FOSS solutions
- FOSS analysers are analytical solutions dedicated to specific process needs
- Strong global organisation with focus on growth
- Privately owned and financially stable

# How to improve your dairy powder production

In process control, seemingly minor adjustments can lead to significantly increased yield and revenue. A FOSS in-line process analysis solution employing High Resolution technology gives you the accuracy you need to monitor and control your process accordingly.



★ = Other FOSS solutions available

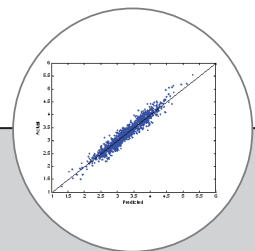
## ProFoss™ – the optimal solution for dairy powder process analysis

- Robust, process solution withstands dust and vibration and complies with hygiene and explosion regulations
- Reliable and low maintenance – keeps on running for maximum uptime
- Results can be fed into your production/SCADA system and/or be presented on a screen in the production area for rapid adjustments of your process
- Full technical support and preventative maintenance options

### Parameters

- Moisture
- Protein
- Fat

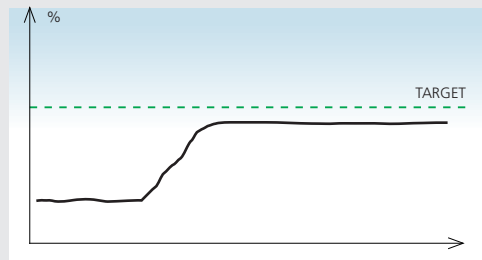
In final dairy powder, the primary profit driver is to optimise the moisture level to increase yield and thereby revenue. Protein and fat are secondary parameters, typically used for validation of the final product quality.



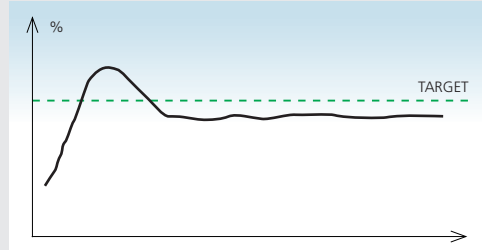
## Process analysis advantages

- Production close to target specifications
- Increased yield
- Less rework and start up variation
- Optimised mass-balance

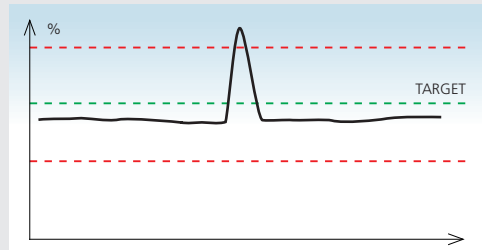
## Production closer to target



## Reduce start up variation



## Alarms when out of spec production

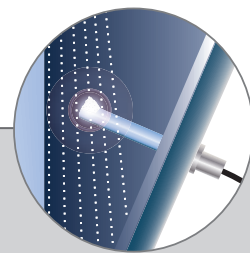
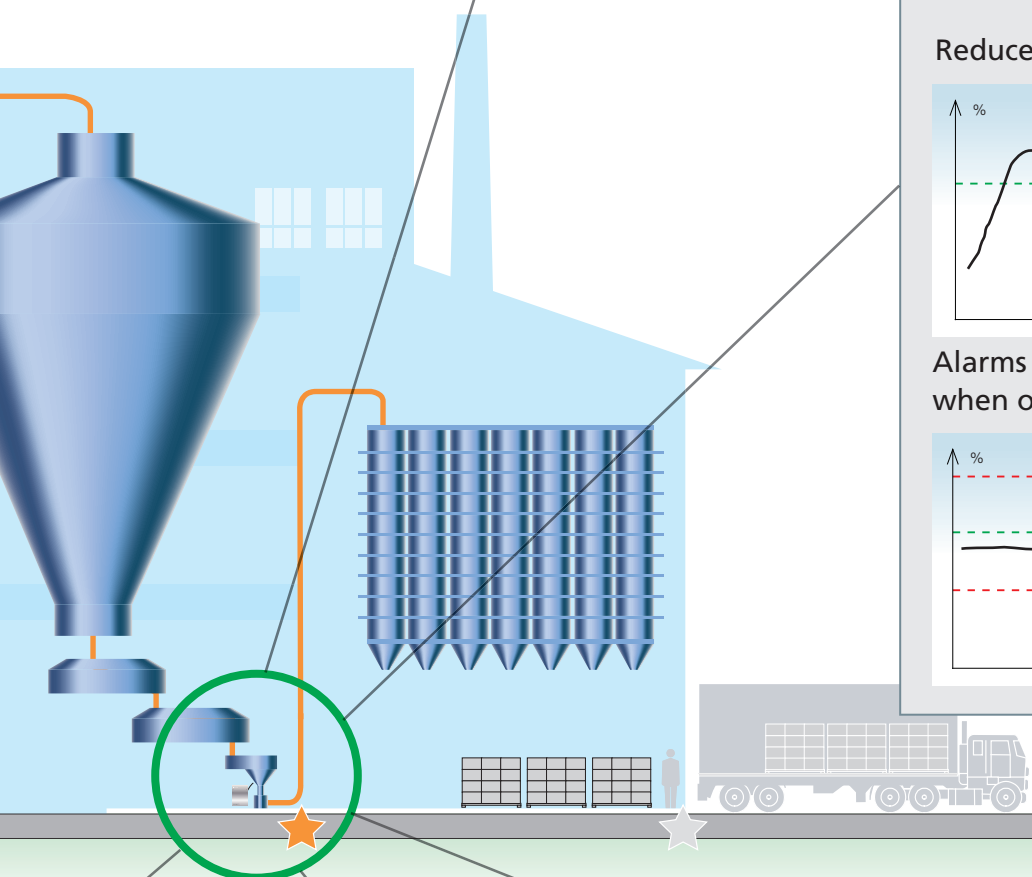


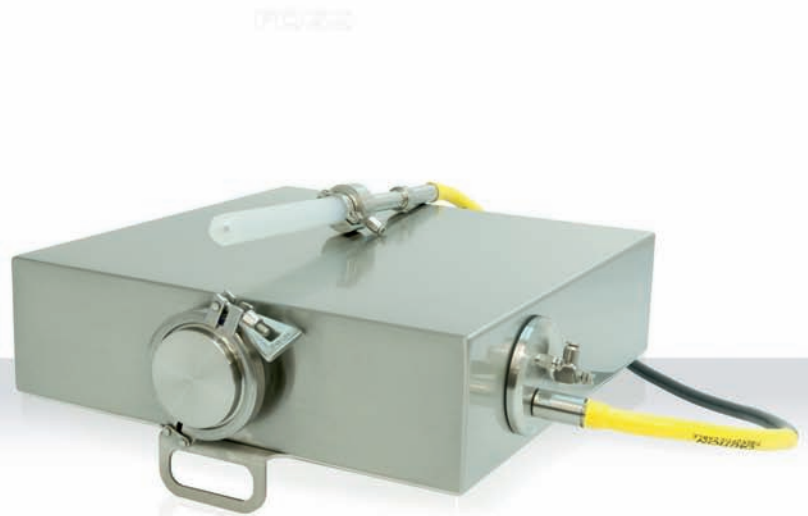
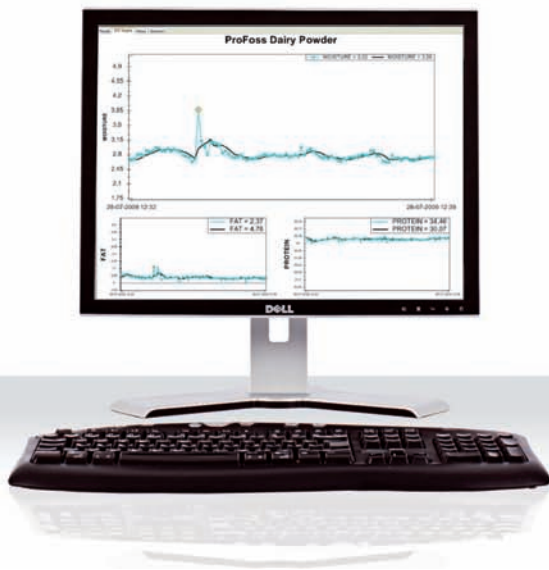
## Typical analyser installation point

- Installation after the secondary drying stage (e.g. fluid bed) in order to validate and adjust final moisture content
- Explosion certified according to IECEx (ATEX)
- Hygiene certified according to 3-A / EHEDG

## Dedicated sample interface

- Spoon probe connected to analyser via fiber optics
- True in-line – no bypass – no waste
- No moving parts
- No hygiene compromises





## ProFoss™ – High Resolution NIR technology

ProFoss™ is unique in employing a near infrared-based analysis technology known as High Resolution diode array analysis. The High Resolution technology ensures accuracy and reliability with measurements based on a high density of data points. ProFoss also includes a dedicated dairy powder sample interface.

### Accurate and continuous results

Measurement accuracy is in line with traditional laboratory analysis. However, results are presented continuously rather than a few times per day, giving the opportunity for immediate adjustments to production.

### Quick and simple to implement

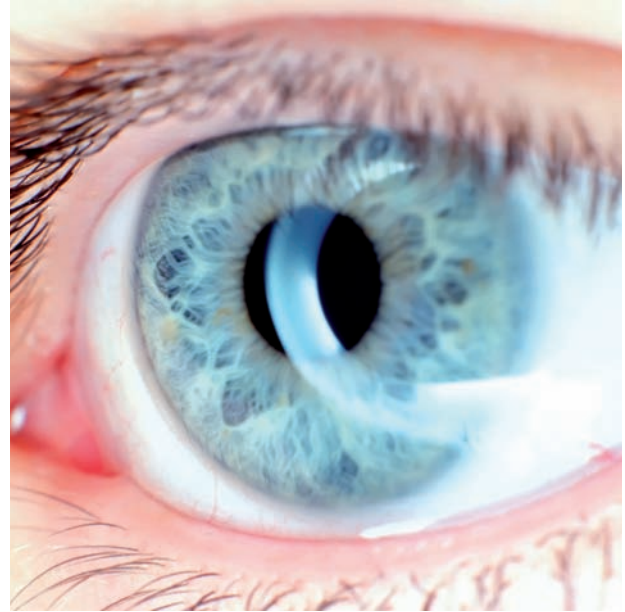
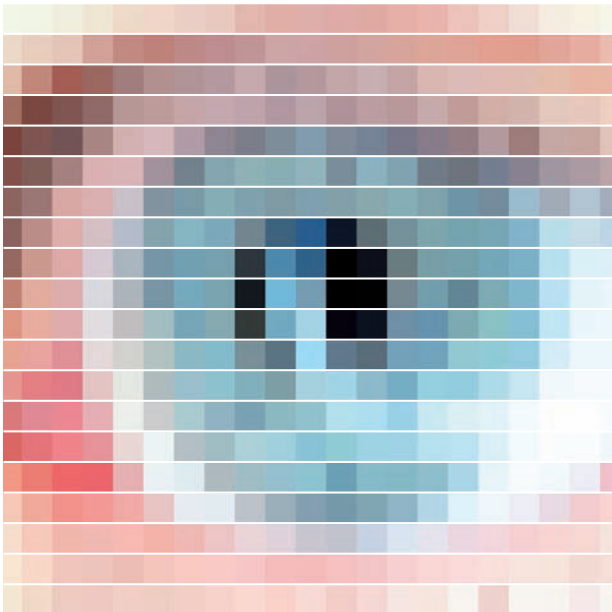
The High Resolution technology behind the accuracy of the ProFoss system also has benefits when implementing the system. Because measurements can be relied upon to be the same across individual instruments and are highly stable over time, you can reduce the time and costs associated with installation of individual analysers. The standardisation and stability of the solution, as well as the intelligent FOSS calibration tool ISical™, makes it fast and easy for non-experts to develop or expand calibrations and transfer them across units.

### Robust and low maintenance operation

The ProFoss system keeps on running to ensure high uptime and minimal impact on daily production. Once calibrated, there is no need for constant adjustments caused by drift or other weaknesses. The high stability of the High Resolution technology ensures the same accuracy day in and day out without hidden operational costs.

### Intelligent calibration tool – ISical™

Calibration is done either through WinISI™ or by using the new intelligent calibration tool, ISical™. ISical requires a minimum of user experience. Each time a reference sample is collected from the process, a button is pressed on the analyser to synchronise the scan with the collected sample. Reference data is added and a calibration is automatically developed (or an existing calibration expanded with the new data). The new ISical tool automatically optimises the calibration algorithms by selecting the most reliable model for future use.



*High Resolution near infrared technology gives you a clearer picture of your process. A high number of pixels (diode sensors) in the spectrum secures a more detailed (accurate) and uniform (repeatable) analysis result. High Resolution also enables manufacturing of "identical" (standardised) analysers which stay the same over time (no drift).*

## The value of a standardised High Resolution analyser

A standardised analyser with transferable calibrations significantly reduces the implementation and maintenance costs.

Transferability is the solid foundation required for rapid implementation of an analyser into a complex process environment. Furthermore, once a calibration has been developed, it can be reused on other analysers

The key to achieving this is the resolution of the analysers wavelength scale. The FOSS High Resolution technology has one sensor for each nm measured, securing 100% stability of the wavelength scale. In contrast, with lower wavelength resolution, shifts of up to 7 – 8 nm in the wavelength scale can occur, which will require major updates of existing calibrations for each new analyser installed.

### FOSS support plans

FossCare™ is a partnership, where FOSS helps customers with preventative maintenance, remote instrument monitoring, consultancy, training programs and breakdown support. FOSS technicians work directly with the customer to solve any problem that they encounter, leading to maximum uptime and increased yield.

By participating in a Preventative Maintenance program, focus is moved from "fix it when it breaks" to a predictable and proactive approach, reducing the cost of unplanned downtime and emergency repairs and increasing the equipment reliability and availability.

### Remote Monitoring and diagnostics

RINA is a remote instrument monitoring and diagnostics software that makes it easy for an internal or external expert to precisely configure, monitor and diagnose FOSS instruments from a remote location. Calibration updates and bias corrections are easily handled through the network and the system can be monitored on a daily basis, allowing you to focus on optimising your production.

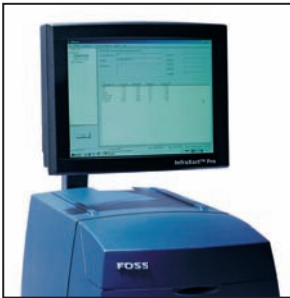
# Dairy powder solutions from FOSS



## ProcesScan™

Accurate Fat and Protein standardisation of the liquid dairy product before the drying process is essential for final product quality and optimal profitability.

ProcesScan™ FT is an on-line analyser providing high accuracy data for standardisation of milk and valuable liquid dairy products. By linking the ProcesScan FT to the FOSS ProcessTouch™ software, you get a complete set-up for milk standardisation – a total solution that optimises both production economy and product quality.



## InfraXact™

InfraXact™ provides accurate and efficient at-line or in the lab analysis of dairy powders and concentrates. The easy to use InfraXact allows anyone to perform high quality analysis.



## ProFoss™

Installed in-line, the ProFoss™ gives a continuous flow of 'real time' results for dairy powder quality out of the fluid bed. Based on the results, the operator or the automatic process regulation system can immediately react to changes in the process. The ProFoss helps you to reduce production variation, produce closer to specifications and to streamline your dairy powder manufacturing process.

ProFoss is a relevant solution for any manufacturer of dairy powder.

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